

## Internet Architecture and Protocol

<b>Course Title:</b> Internet Architecture and Protocol					
<b>Course Code:</b> CIT62016	<b>Student Workload:</b> 8.5 Hours/ Weeks	<b>Credits:</b> 3 Credits (4.5 ECTS)	<b>Semester:</b> 4 <sup>th</sup> Semester	<b>Frequency:</b> Even Semester	<b>Duration:</b> 16 Weeks/ Semester ( <i>Lecture:</i> 14 weeks; <i>Midterm assessment:</i> 1 week; <i>Final assessment:</i> 1 week)
<b>1</b>	<b>Types of Courses:</b> Specific skills	<b>Contact Hours:</b> <i>Lecturing:</i> 1.60 Hours/ Week; <i>Practical Work:</i> 0.83 Hours/ Week	<b>Independent Study:</b> <i>Self-study:</i> 3.00 Hours/ Week; <i>Structured Assignment:</i> 3.00 Hours/ Week	<b>Class Size:</b> 40 Students	
<b>2</b>	<b>Prerequisites for Participation (If Applicable):</b> Basic Computer Network				
<b>3</b>	<b>Learning Outcomes:</b> 1. M1: Able to explain the concept of routing in IP networks 1. M2: Able to explain how routing protocols work in IP networks 2. M3: Able to explain Internet routing architecture 3. M4: Able to explain router architecture 4. M5: Able to explain how Quality of Service Routing and MPLS work 5. M6: Able to explain the concept of switching in IP networks 6. M7: Able to implement routing protocols and VLANs				
<b>4</b>	<b>Subject aims/Content:</b> At the end of the course, students are expected: 1. L1: Able to implement IP addressing. 2. L2: Able to explain network topology architecture. 3. L3: Able to explain network management architecture. 4. L4: Able to explain the approach of the Bellman-Ford algorithm and Dijkstra's algorithm in routing algorithms. 5. L5: Able to explain the working principle of routing protocol and its framework. 6. L6: Able to explain and implement Distance vector-based routing protocols. 7. L7: Able to explain and implement Link State-based routing protocols 8. L8: Able to explain addressing and routing on Internet architecture. 9. L9: Able to explain the distribution of IP prefix and AS Number allocation. 10. L10: Able to explain the concept of traffic engineering and its implications in the network. 11. L11: Able to explain the problems that become issues in Internet routing. 12. L12: Able to use IP address lookup algorithm. 13. L13: Able to explain IP address classification and filtering. 14. L14: Able to explain how QOS-based routing works. 15. L15: Able to explain the working principle of Adapting Shortest Path and Widest Path Routing. 16. L16: Able to explain the working principle of MPLS. 17. L17: Able to explain MPLS VPN. 18. L18: Able to explain switching technology and how switches work. 19. L19: Able to explain the protocols that work in the switch. 20. L20: Able to implement VLAN.				
<b>5</b>	<b>Teaching Methods:</b> Lecturing, Group Discussion, Case-Based Learning, Project-Based Learning				
<b>6</b>	<b>Assessment Methods:</b> Essay, Multiple-Choice, Project Assessment, Anecdotal Record/Logbook, Product Assessment				
<b>7</b>	<b>This Course is Used in The Following Study Programme/s as Well:</b> -				

<b>8</b>	<b>Responsibility for Course:</b> 1. Dany Primanita Kartikasari, S.T., M.Kom.
<b>9</b>	<b>Other Information:</b> Bibliography: 1. Medhi, Deepankar, Network Routing Algorithm, Protocol and Architectures, Morgan Kaufman, 2007 2. Sofana, Iwan, Cisco CCNA-CCNP, Routing dan Switching